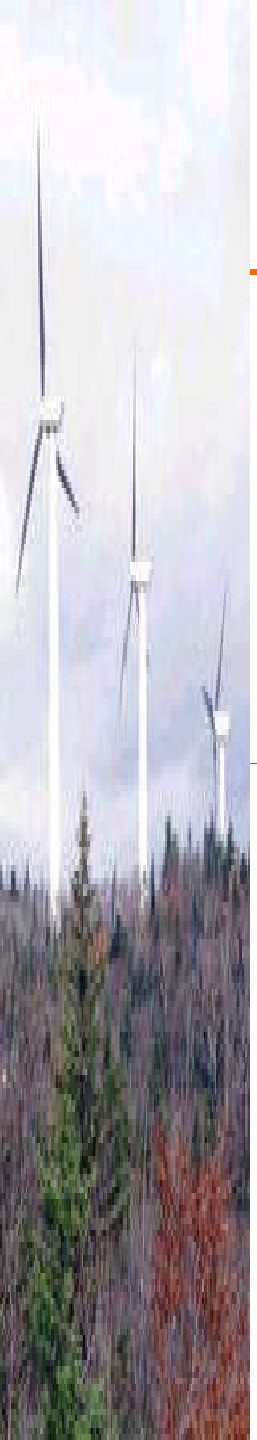


Wind Energy for Eastham
Public Information Session

Eastham Energy Committee

Brian Eastman, Chair

Joseph Mistretta, Clerk.

George Katz

Gwen Pelletier

John Sherff

Jack Slavin, Staff

AGENDA: Wind Energy for Eastham
Who: Eastham General Public

- **Welcome & Introductions-** Gwen Pelletier, Member, Energy Committee
- **An Introduction to Wind Energy-** Richard Lawrence, Director of Education, Self Reliance Corp
- **Wind Power for Eastham-** Jack Slavin, Staff to Energy Committee
- **Q&A Panel-** Richard Lawrence, Kristen Goland, Kevin Galligan, Ric O'Connell, Gwen Pelletier

Participants

- **Richard Lawrence** - Director of Special Projects & Education, Cape & Islands Self Reliance Corp.
- **Kristen Goland** - Wind Siting & Community Planning Manager, MTC
- **Kevin Galligan** - Chairman, Orleans Wind Energy Committee
- **Ric O'Connell** - Wind Energy Consultant, Black & Veatch
- **Jack Slavin** - MIS Director, Town of Eastham

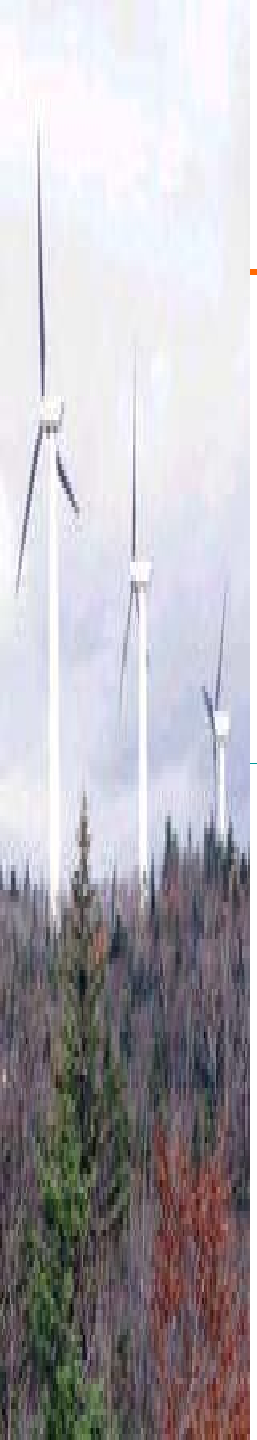
A DISCLAIMER:

- Neither the Town of Eastham nor its appointed Energy Committee had any input, involvement, review, or approval of the article and poll appearing in the December 1, 2006 edition of the Cape Codder (*"Eastham's Coming Wind"* or the associated *"What do you think?")*
- The article and poll may appear as though they ware prepared by the Eastham Energy Committee. They were not. After discussion with The Cape Codder's editorial staff, we were informed that their source was a single individual who is not a member of the Eastham Energy Committee nor an employee of the town.
- The CAPE CODDER has apologized and will publish a retraction/clarification in its next issue.

Sheila Vanderhoef, Town Administrator

QUESTIONS???

- Please hold your questions until the Q & A Panel.
- Write down your question if you prefer; we'd be happy to answer them.
- Our goal is to answer all your questions.



An Introduction to Wind Energy

Presented by:

Richard Lawrence

Director, Special Projects & Education, Cape & Islands Self Reliance Corp.

and

Instructor of Renewal Energy Technology at CCCC









Massachusetts Technology Collaborative
Community Wind Collaborative

Presented by:

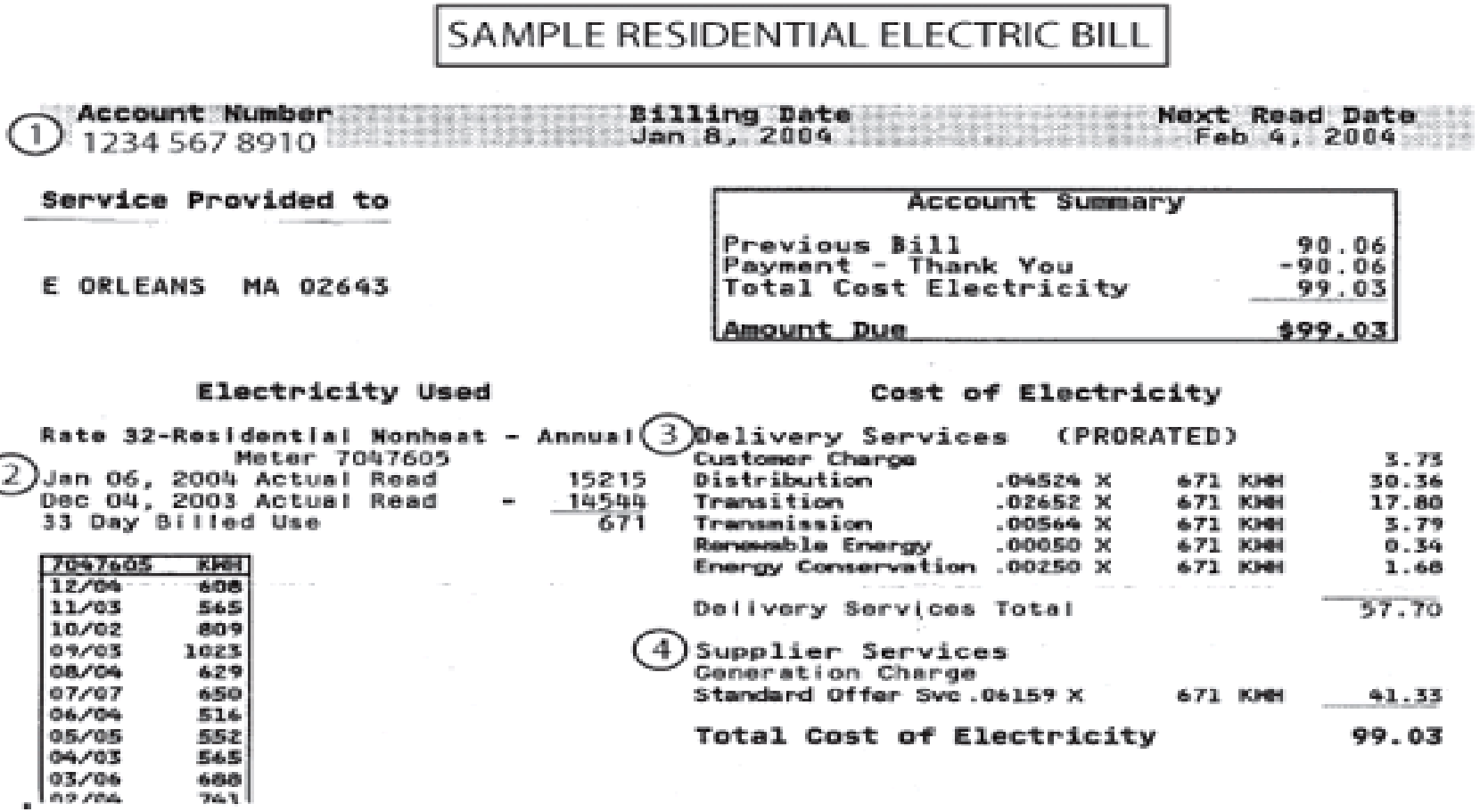
Kristen Goland

Wind Siting and Planning Manager

Massachusetts Technology Collaborative Renewable Energy Trust- Our Partner

- Created in 1998 as part of utility deregulation
- Funded by public benefits charge paid by investor-owned utility customers
- Massachusetts Technology Collaborative (MTC) is manager, as part of “innovation economy”
- The Trust’s mission:
  - Increase the supply of and demand for energy from clean sources
  - Promote the development of a vibrant Massachusetts renewable energy industry

Renewal Energy Charge



SAMPLE RESIDENTIAL ELECTRIC BILL

① Account Number 1234 567 8910 | Billing Date Jan 8, 2004 | Next Read Date Feb 4, 2004

Service Provided to

E ORLEANS MA 02643

Account Summary

Previous Bill	90.06
Payment - Thank You	-90.06
Total Cost Electricity	99.03
Amount Due	$99.03

Electricity Used

Rate 32-Residential Nonheat - Annual
Meter 7047605

② Jan 06, 2004 Actual Read 15215
Dec 04, 2003 Actual Read - 14544
33 Day Billed Use 671

7047605	KWH
12/04	608
11/03	565
10/02	809
09/03	1023
08/04	629
07/07	650
06/04	516
05/05	552
04/03	565
03/06	668
02/04	741

Cost of Electricity

③ Delivery Services (PRORATED)

Customer Charge				3.73
Distribution	.04524 X	671	KWH	30.36
Transition	.02652 X	671	KWH	17.80
Transmission	.00564 X	671	KWH	3.79
Renewable Energy	.00050 X	671	KWH	0.34
Energy Conservation	.00250 X	671	KWH	1.68
Delivery Services Total				57.70

④ Supplier Services
Generation Charge
Standard Offer Svc .06159 X 671 KWH 41.33

Total Cost of Electricity 99.03

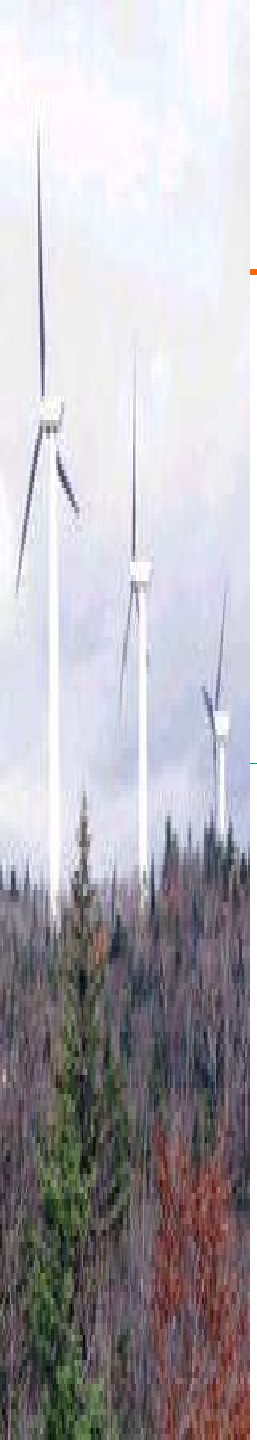
MTC Community Wind Collaborative (CWC)

- Premise
  - Local project sponsorship creates a sense of ownership
  - We can increase comfort levels by beginning with small projects (i.e. few turbines)
  - Early projects will build public support for renewable energy
- MTC Role: provide technical, analytical and financial support to communities

Community Wind Process

1. Project Conception / Identify Potential Sites
2. Wind Resource Monitoring & Analysis
3. Feasibility Analysis
4. Municipal decision
5. Public Outreach, Education
6. Business Planning
7. Construction and Interconnection
8. Operation and Maintenance

MTC incurs cost for phases 1-5 for communities who qualify in an effort to support the decision making process. MTC is committed to helping support FEASIBLE projects through the later stages through a Standard Financial Offer



North Eastham Wind Feasibility Study Results & Project Details

Presented by:

Jack Slavin

Staff to Eastham Energy Committee and Eastham's MIS Director

Wind Energy for Eastham- Topics

- Background and context
- North Eastham feasibility study results
- Project ownership and finance considerations
- Next steps
- Q & A Session

Energy Committee Charge, Recommendation & Direction

- **Charge** #6 (06/05/03): “Set up process to identify the best deals and reliable companies for the implementation of a wind turbine in the Town of Eastham.”
- **Recommendation:** From the Feasibility Report, we recommended Option 4: Up to four Turbines at the North Eastham Site.
- **Directed by Selectmen :** To continue efforts toward issuing a Request for Proposals from private entities interested in developing and owning a project with up to four turbines in North Eastham.
- Including:
  - Authorization to proceed in issuing an RFP with necessary support from local officials and departments
  - Authorization to explore and obtain necessary local, state & national permits

Eastham Process Summary

- Wind Measurement Spring 2003-2004
- Initiate CWC process with MTC Spring 2004
- Black and Veatch assigned site screening analysis Summer 2005
- Site Screening Analysis Fall 2005
  - –3 locations (Town Hall complex, DPW, North Eastham)
- Energy Committee requested North Eastham for Feasibility Analysis. Completed March 2006
- Phase 1 Avian Risk Assessment August 2006

Public or Private Development

Public

- Must use all the electricity
- Legislative roadblocks
- Don’t qualify for Production Tax Credits

Private Sector

- By default
- Benefit to Town: No capital investment upfront, and no infrastructure or maintenance
- Many financial incentives> PTC and others

Roles

MTC

- Provide Support Funding
- Provide Guidance to community
- Manage creation of technical analysis
- Overall municipal assistance

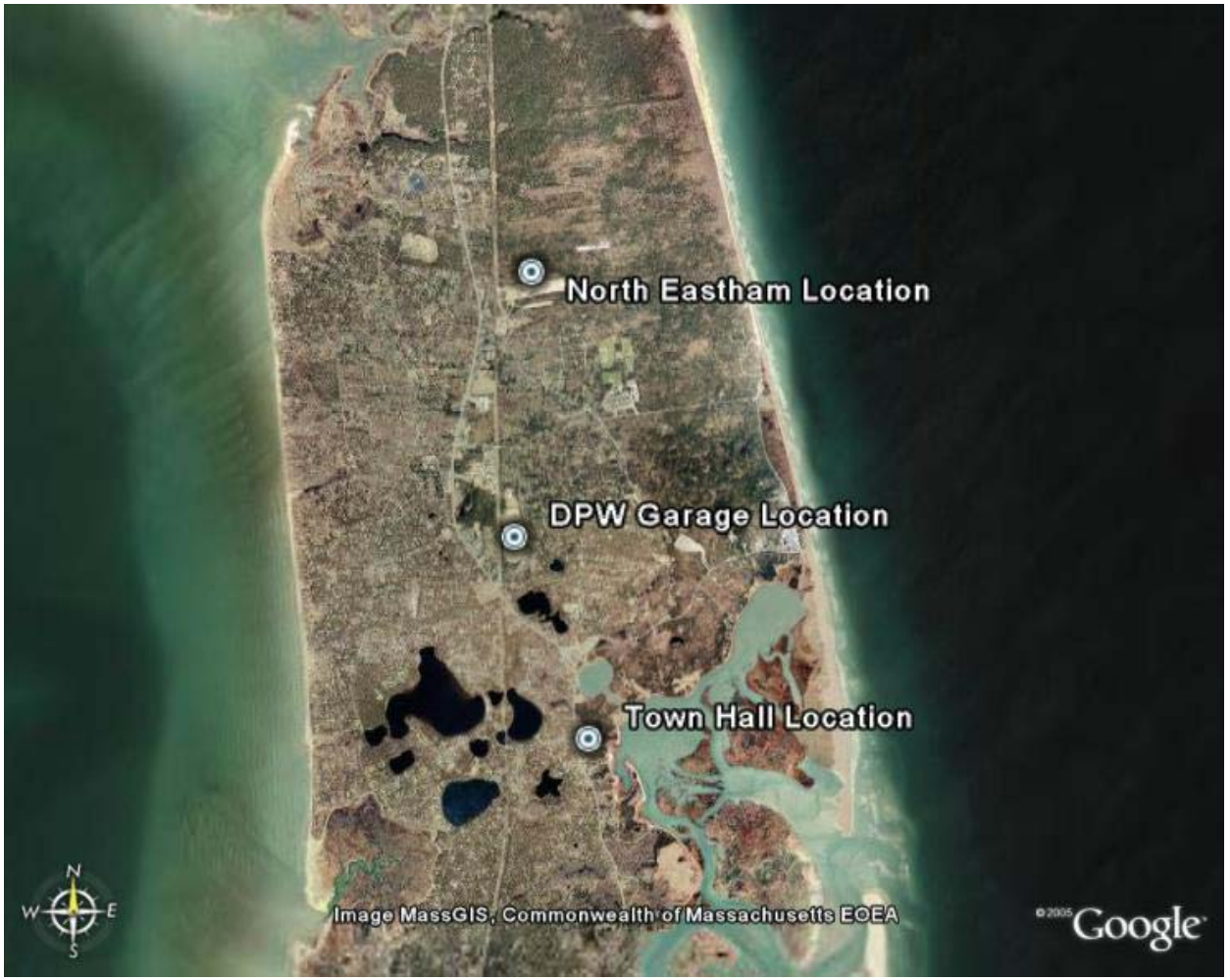
Community

- Sponsor a project on public land and build local support
- Manage local decision process
- Support project permitting and approvals process

Private Sector

- Turbine supply & installation
- Finance, own, and manage the project
- Asset management services
- Operation and maintenance services

3 Sites Considered



Why not the Town Hall Site
Large electric load, but

A ONE turbine site:

- Can not use all the electricity; can't sell excess
- No Net Metering- 60KW limit
- Site too small for a large turbine making the project not economically feasible
- We would lose 'FIELD of DREAMS'

Why not DPW Site

ONE big & ONE small turbine site:

- Small turbine too close to homes
- Can not use all the electricity; can't sell excess; no Net Metering
- Good site for town-owned installation, if rules change
- A one turbine site might not attract bidders
- Small load; Economics poor

Feasibility Study Results

North Eastham location (Off Nauset Rd & Railroad Ave near Cell Tower) up to 4 turbines

- East of the Cape Cod Rail Trail & Power Lines
- Two town-owned areas with a gravel pit in between & just West of Cape Cod National Seashore
- Can accommodate up to 4 turbines (2 in each area)
- Environmental studies necessary
- Early Interconnection study necessary
- Verification of wind data is suggested

North Eastham Location

Photo Simulation 1: Nauset Road

Photo Simulation 2: Linda Lane

Photo Simulation 3: Route 6 @ Nauset

Photo Simulation 4: Nauset Beach

Opportunity for financial benefit:

The final economic value of any project to the Town is subject to negotiation with the project's developer/owner and is influenced by:

1. Wind resource- Gathering more data
2. Total # of turbines installed- 4 is better than 1
3. Total installed cost- Turbine price & availability
4. Power and REC (**R**enewal **E**nergy **C**redit) selling price

Revenue Options

- Lease + Taxes + Revenue Sharing

  +Lease for 20 Years: Flat rate

  +Taxes decline over time: Variable

  +Revenue Sharing: Variable

- PILOT + Revenue Sharing

  +Payment in Lieu of Taxes: Flat Rate

  +Revenue Sharing: Variable

- CLC Cooperative Alternative (??)

Current project uncertainty; Known at end of RFP Process

- Who will develop and own the project
- Exact number of turbines
- Size (height) of turbines
- Exact location of turbine(s)
- Revenues to town
- Timeframe

Bottom Line for Eastham

- Ability to offset much of Eastham's Municipal Electricity Costs- Currently about $170K per year- through lease and tax payments
- Potential Revenue source (Revenue Sharing with project owner)

  >Protection from increasing Electric Energy Costs
- Positive Environmental Benefits- No greenhouse gases
- Reduced dependence on foreign fossil fuels

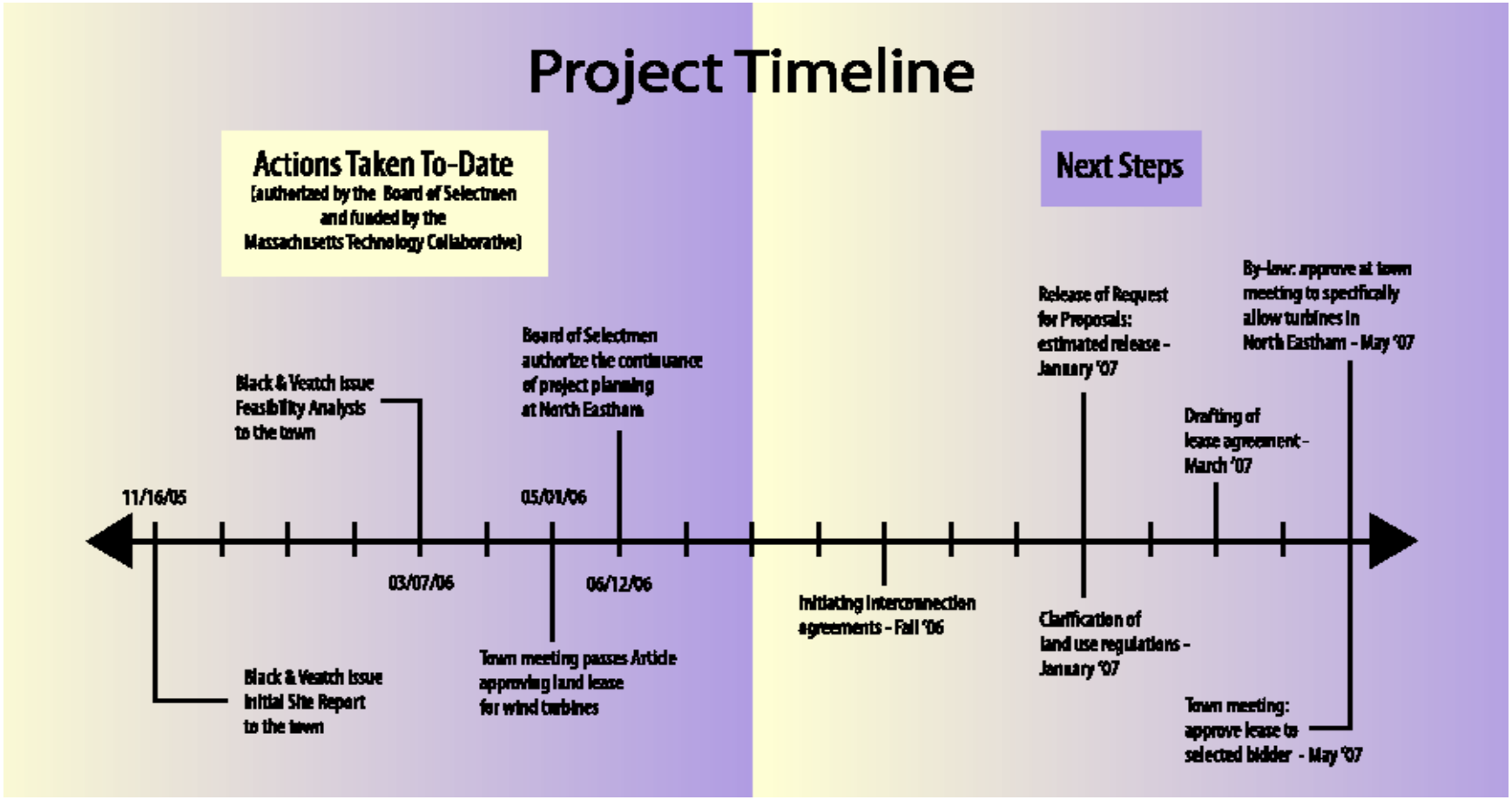
Key Next Steps

- **Interconnection Study**
  - LV Distribution or HV Transmission connection unknown. May conduct study earlier
- **Land Use Regulations**
  - Water Resources Protection District G- Preliminary OK, formal opinion underway
  - National Seashore Restrictions – Currently exploring
  - Creation of wind turbine by-law – Underway
- **Wind Analysis**
  - New Meteorological tower and/or SODAR (installed 11/17, see next slide)
- **Education**
  - Boards, Committees, Employees
  - Citizens - Abutters and General Public Education Sessions
- **Additional Work**
  - Water Resources Committee- Re: Wells- Engineering discussions underway
  - Noise Impact Analysis - Underway
  - Develop lease agreement - Underway
  - Develop Request for Proposals (RFP) - Underway
  - Apply to MTC for Standard Financial Offer

SODAR- Installed 11/17 (**so**nic **d**etection **a**nd **r**anging)

SODAR sound = chirps

Proposed Timeline



More Information

Go to the Town of Eastham Website at:

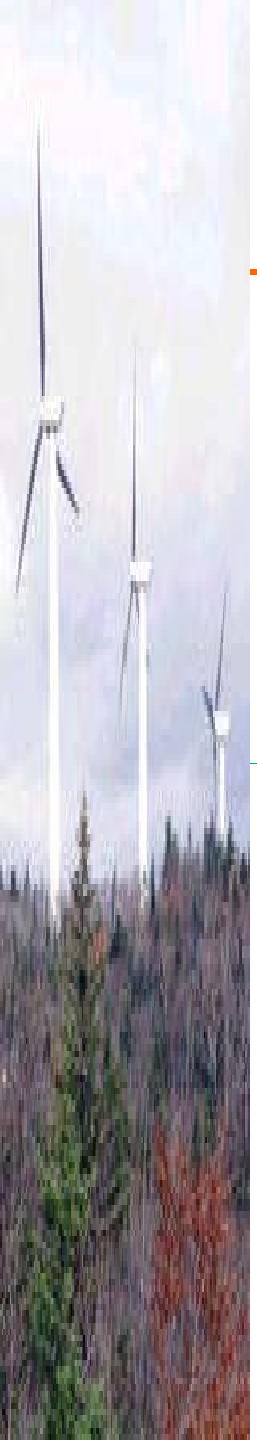
www.eastham-ma.gov

- Click on BOARDS & COMMISSIONS
- Click on Energy Committee
- Click on Wind Turbine Feasibility & Other Documents

>To find all the published studies and reports.

Or you can go directly to:

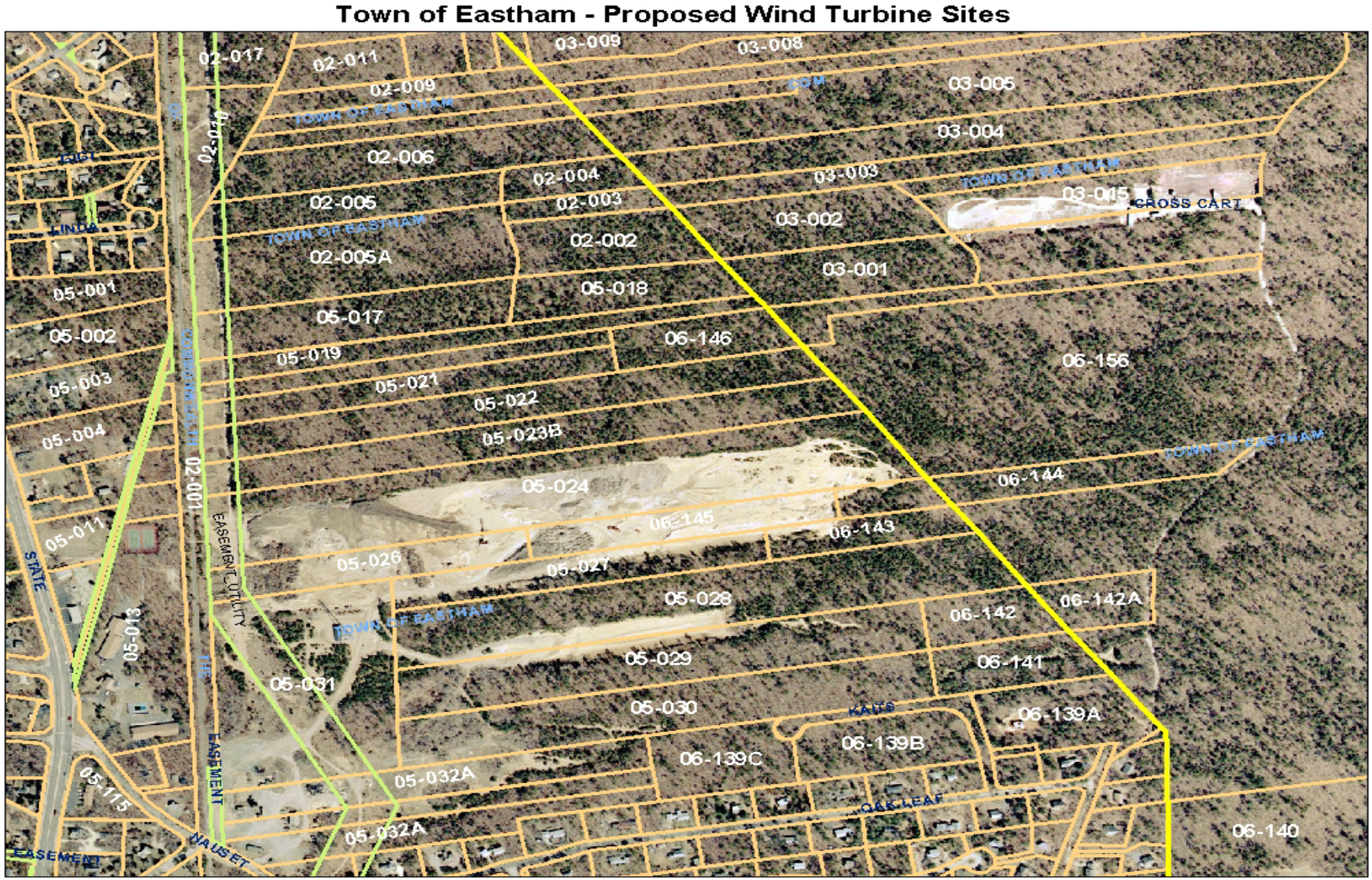
http://masstech.org/Project%20Deliverables/Comm_Wind/Eastham/Easthamdocs.html



QUESTIONS?
Q & A Panel

- Kevin Galligan, Orleans Wind Energy Committee
- Ric O'Connell, Black & Vetch
- Richard Lawrence, C&I Self Reliance Corp.
- Kristen Goland, MTC
- Gwen Pelletier, Energy Committee

Maps & Parcels



Access Roads

Hull 2

Whispers & Whirls

(Comparing Eastham's wind turbines to known sound levels)

No sound:	**0 decibels**
Rustle of a leaf:	**10 dB**
Buzzing insect:	**20 dB**
Quiet whisper:	**30 dB**
Eastham's Wind Turbines:	***35-45 dB***
Home noise:	**50 dB**
Normal conservation:	**60-70 dB**
Office noise:	**60 dB**
City traffic (inside car):	**85 dB**
Industrial noise:	**100 dB**
Jet engine:	**140 dB**
The call of the blue whale:	**188 dB**

Turbine Height

0	Illustration - Max Height 124 Meter Turbine